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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,771	11/20/2001	Takeshi Takase	P 284150 T4SS-01S1196	9100

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EXAMINER

ROSSI, JESSICA

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/988,771	Applicant(s) TAKASE, TAKESHI	
	Examiner Jessica L. Rossi	Art Unit 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1-3, 5, and 6-7 are objected to because of the following informalities:

Claim 1, line 10: "a sealant" should be changed to --the sealant-- because antecedent basis established in preamble.

Claim 2, line 2: "the" should be deleted after "wherein".

Claim 3, line 2: "the" should be deleted after "wherein".

Claim 5, line 15: --the-- should be inserted after "peripheral".

Claim 6, line 2: "the" should be deleted after "wherein".

Claim 7, line 2: "the" should be deleted after "wherein".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 1 and 5, it is unclear what is meant by the motherboards being "greater" than the substrates? What about the motherboards is greater than the substrates? Do Applicants mean that the motherboards are larger than the substrates (see Figures 3A-D)? Applicants are asked to clarify. It is suggested to change "greater" to --larger-- in both of these claims.

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (JP 5-165037; abstract and oral translation) in view of the collective teachings of Furushima et al. (US 5410423) and Nishiguchi et al. (US 6226067), and also in view of the collective teachings of Furushima et al. and Sasaki (US 6573972).

With respect to claim 1, Yamamoto is directed to making a liquid crystal display (LCD) having a pair of substrates 3a, 3b opposed to each other across a gap and including respective peripheral edge portions stuck to each other with a sealant 5 (Figure 1 and oral translation). The reference teaches preparing a pair of motherboards 2, 8 larger than the substrates, forming a display portion on each motherboard, locating a **thermosetting sealant 5** on the motherboard 8 so as to surround the peripheral edge portion of the display portion, and locating a **temporary UV-curable adhesive 6** on the end portions of the motherboard (oral translation). The reference teaches sticking the motherboards on each other by means of the sealant 5 and temporary adhesive 6, aligning the stuck motherboards, tacking the motherboards to each other by curing the temporary adhesive 6 after the aligning step, and finally bonding the motherboards to each other by curing the sealant 5 after the tacking step ([0018-0024]).

The reference is silent as to the temporary adhesive 6 covering end spacers for maintaining a gap and cutting out the substrates by cutting the two motherboards outside the sealant after the final bonding step.

It is known in the art to make an LCD by arranging two motherboards 1, 2 having a gap between them, attaching the motherboards by means of an inner seal 3, which surrounds the periphery of the display portions formed on each motherboard, and an outer temporary seal 4 located at the end portions of the motherboards, curing the seals, and cutting the motherboards outside the inner seal 3 but not the outer seal 4 to form individual LCD's, as taught by Furushima (Figure 1; column 3, lines 3-15 and 26-29). This reference teaches maintaining a gap between the motherboards during processing steps by having spacers mixed in with both the inner seal 3 and outer temporary seal 4 (column 3, lines 11-12).

It is also known in the art to make an LCD wherein opposing substrates are supported and adhered to each other by means of a UV-curable adhesive 7 having spacers 4 within and surrounding the periphery of the display region, as taught by Nishiguchi (Figure 13; abstract; column 14, lines 48-53; column 15, lines 20-24).

Therefore, it would have been obvious to the skilled artisan at the time the invention was made to mix spacers in with both the sealant 5 and UV-curable temporary adhesive 6 of Yamamoto to form end spacers for maintaining a gap between the motherboards because such is known in the art, as taught by the collective teachings of Furushima and Nishiguchi, for doing just that (see cited portions of Furushima and Nishiguchi in preceding paragraphs).

As stated above, Furushima teaches cutting the motherboards outside the sealant 3 but not the temporary sealant 4 after bonding to form a plurality of LCD's. It is also known in the art to

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make an LCD having a thermosetting sealant 13 surrounding the periphery of the display portions and a UV-curable temporary adhesive 12 located on the end portions of motherboards 1, 2 wherein the adhesive is cured first, followed by curing of the sealant, and the bonded motherboards are then cut outside the sealant 13 but not the temporary adhesive 12 so as to form a plurality of LCD's, as taught by Sasaki (Figures 8A-C; column 9, lines 3-5 and 51-53; column 17, lines 48-55).

It would have been obvious to the skilled artisan at the time the invention was made to form a plurality of substrates and their respective display portions along the length of the motherboards of Yamamoto and then cut the same to form a plurality of LCD's by cutting outside the thermosetting sealant 5 but not the temporary UV-curable adhesive 6 because such is known in the art, as taught by the collective teachings of Furushima and Sasaki, and this allows for mass production of the same.

Regarding claims 2-3, application of the spacers and adhesive would have been within purview of the skilled artisan at the time the invention was made; it being noted that such is not critical to the teachings of Yamamoto. However, the skilled artisan would have appreciated that spreading adhesive having spacers therein and spreading adhesive over already placed spacers are techniques notoriously well known and conventional in the art.

Regarding claim 4, Yamamoto in view of the collective teachings of Furushima and Nishiguchi teaches the adhesive 6 and spacers being located at least in the four corners of the motherboard (see Figure 2 of Yamamoto).

6. Claims 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. in view of the Admitted Prior Art, the collective teachings of Furushima et al. and Nishiguchi et al., and also in view of the collective teachings of Furushima et al. and Sasaki.

With respect to claim 5, all the limitations were addressed above with respect to claim 1, except a plurality of spacer posts arranged between the substrates and an optical modulation layer sealed in a region surrounded by the sealant.

Yamamoto teaches spacers 7 arranged between the substrates (Figure 1; oral translation) for maintaining a gap but is silent as to them being spacer posts. It appears Applicants are teaching it is known in the art to form spacer posts between the substrates for maintaining a gap between the same (p. 2, lines 12-19). One reading Yamamoto as whole would have appreciated that the type of spacers is not critical to the invention and therefore it would have been obvious to the skilled artisan at the time the invention was made to use spacer posts as an alternative to the spacers 7 of Yamamoto because such spacers are known in the art, as taught by the Admitted Prior Art, and only the expected results of maintaining a gap would have been achieved.

Regarding claims 6-7, Applicants are directed to the rejection of claims 2-3 above.

Regarding claim 8, selection of a particular shaped spacer would have been within purview of the skilled artisan at the time the invention was made; it being noted that pillar shaped spacers are well known and conventional in the art.

Regarding claim 9, Yamamoto teaches the optical layer being a liquid crystal layer formed of a liquid crystal constituent (oral translation).

Regarding claims 10-11, Yamamoto teaches curing the adhesive 6 by UV radiation and curing the thermosetting sealant 5 by heating (oral translation).

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Regarding claim 12, Applicants are directed to the rejection of claim 4 above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jessica L. Rossi** whose telephone number is **703-305-5419**. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

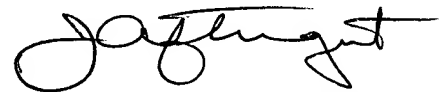
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W. Ball can be reached on 703-308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jessica L. Rossi
Patent Examiner
Art Unit 1733



jlr



JEFF H. AFTERGUT
PRIMARY EXAMINER
GROUP 1300